<u>IN THE CLAIMS</u>:

1. (currently amended) A method of ~~charging and discharging~~ <u>improving the cycle characteristics of</u> a lithium secondary battery which includes a negative electrode having an active material layer including silicon provided on a current collector comprising a metal which does not form an alloy with lithium, comprising charging ~~and discharging~~ the battery within a range of state of charge (SOC) where no peak corresponding to a compound of silicon and lithium is observed in an X-ray diffraction pattern of the negative electrode during charging using CuK_α-radiation as the X-ray source.

2. (original) The method according to claim 1, wherein the active material layer comprises a thin film of amorphous silicon deposited on the current collector.

3. (original) The method according to claim 1, wherein no peak corresponding to an intermetallic compound of lithium and silicon is observed in the X-ray diffraction pattern.

4. (original) The method according to claim 2, wherein no peak corresponding to an intermetallic compound of lithium and

silicon is observed in the X-ray diffraction pattern.

5. (original) The method according to claim 3, wherein the intermetallic compound is $Li_{13}Si_4$.

6. (original) The method according to claim 4, wherein the intermetallic compound is $Li_{13}Si_4$.

7. (original) The method according to claim 1, wherein no peak is observed in the X-ray diffraction pattern in a range of 18 ~ 28°.

8. (original) The method according to claim 2, wherein no peak is observed in in the X-ray diffraction pattern a range of 18 ~ 28°.

9. (original) The method according to claim 7, wherein no peak is observed as a halo pattern in the X-ray diffraction pattern in a range of 18 ~ 28°.

10. (original) The method according to claim 8, wherein no peak is observed as a halo pattern in the X-ray diffraction

pattern in a range of 18 ~ 28°.

11. (original) The method according to claim 7, wherein no peak in the form of three peaks is observed in the X-ray diffraction pattern in a range of 18 ~ 28°.

12. (original) The method according to claim 8, wherein no peak in the form of three peaks is observed in the X-ray diffraction pattern in a range of 18 ~ 28°.

13. (original) The method according to claim 1, wherein the active material layer comprises silicon particles and a binder.

14. (original) The method according to claim 1, wherein the active material layer is a thin silicon film formed by deposition.

15. (original) The method according to claim 1, wherein the current collector comprises copper or a copper alloy.

16. (original) The method according to claim 2, wherein the current collector comprises copper or a copper alloy.

17. (withdrawn) A lithium secondary battery comprising a negative electrode having an active material layer including silicon provided on a current collector comprising a metal which does not form an alloy with lithium, wherein no peak corresponding to a compound of silicon and lithium is observed in an X-ray diffraction pattern of the negative electrode during charging using CuK_{α}-radiation as the X-ray source.

18. (withdrawn) The lithium secondary battery according to claim 17, wherein the active material layer comprises a thin film of amorphous silicon deposited on the current collector and no peak except for a peak corresponding to the current collector is observed in the X-ray diffraction pattern of the negative electrode during charging using CuK_{α}-radiation as the X-ray source.

19. (withdrawn) A lithium secondary battery comprising a positive electrode containing a positive electrode active material, a negative electrode having an active material layer including silicon provided on a current collector comprising a metal which does not form an alloy with lithium, wherein an amount of the positive electrode active material is an amount which limits the

charge capacity of the battery to 90 % or less of the maximum capacity of the negative electrode.

20. (withdrawn) The lithium secondary battery according to claim 19, wherein the active material layer comprises a thin film of amorphous silicon deposited on the current collector.